# N4AJH MODEM I

# HF / VHF PACKET

## A FADCA SPONSORED PROJECT

## ASSEMBLY AND TUNING INSTRUCTIONS

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# MODEM TUNING INSTRUCTIONS

## MODULATOR SECTION:

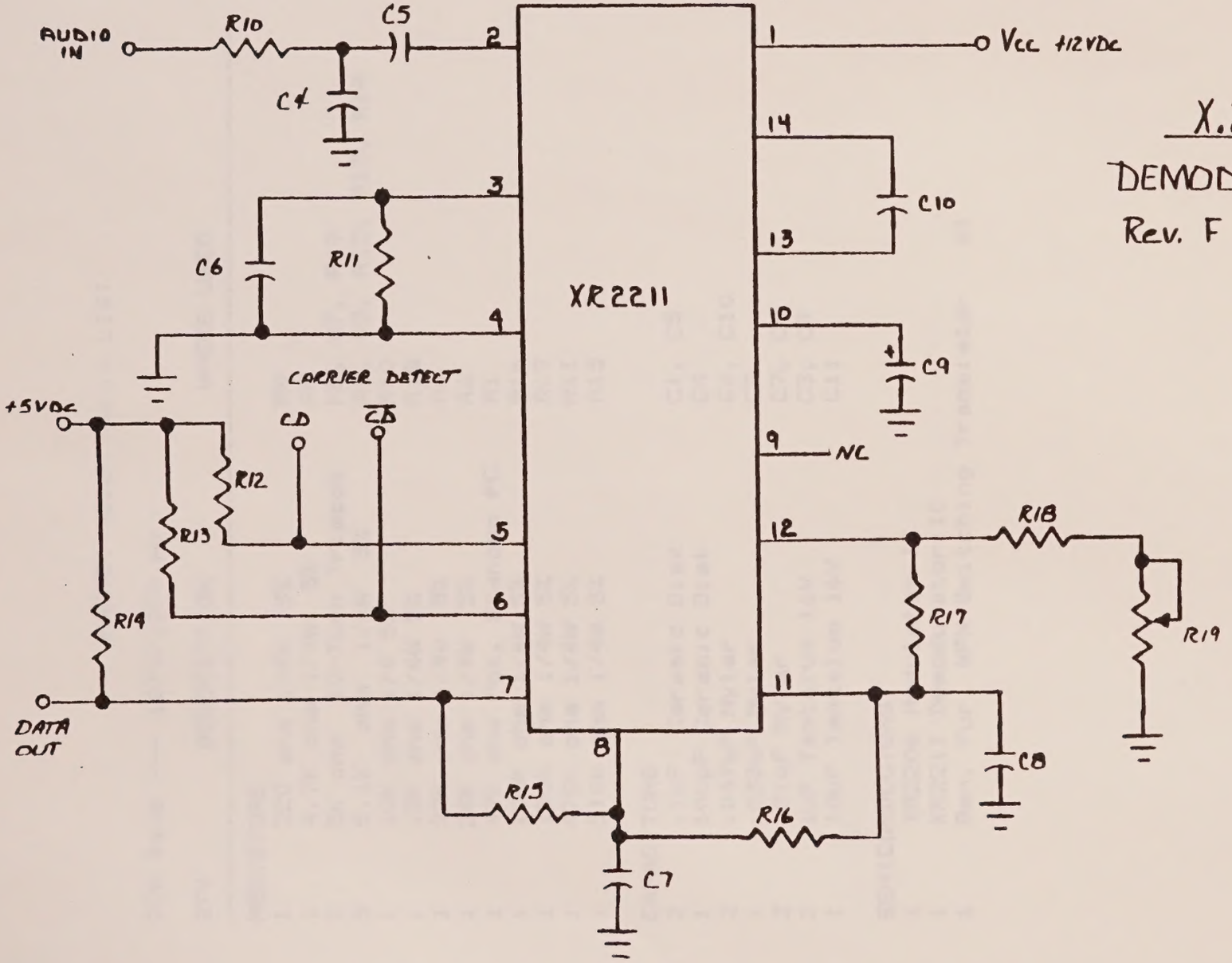
1. Apply power to the modem
2. Connect a Frequency counter accurate to 1 Hz to the audio output line.
3. Place a 3 to 5 volt dc level on the Data input line.
4. Adjust R5 for 2200 Hz for 1200 baud modems, or 1270 Hz for 300 baud modems.
5. Place a 0 volt dc level on the Data input line.
6. Adjust R7 for 1200 Hz for 1200 baud modems, or 1070 Hz for 300 baud modems.
7. Recheck the frequencies again using steps 3 through 6.
8. Adjust R1 for the desired audio output level.

## DEMODULATOR SECTION:

1. Remove power from the modem
2. Short pins 2 and 10 of the XR2211 IC together.
3. Apply only +12 volts to the modem. Do NOT apply +5 volts.
4. Connect a frequency counter to pin 3 of the XR2211.
5. Adjust R19 for 1700 Hz for 1200 baud modems, or 1170 Hz for 300 baud modems.
6. Remove power to the modem.
7. Remove short between pins 2 and 10 of the XR2211 IC.
8. Install modem and have fun.

## NOTE:

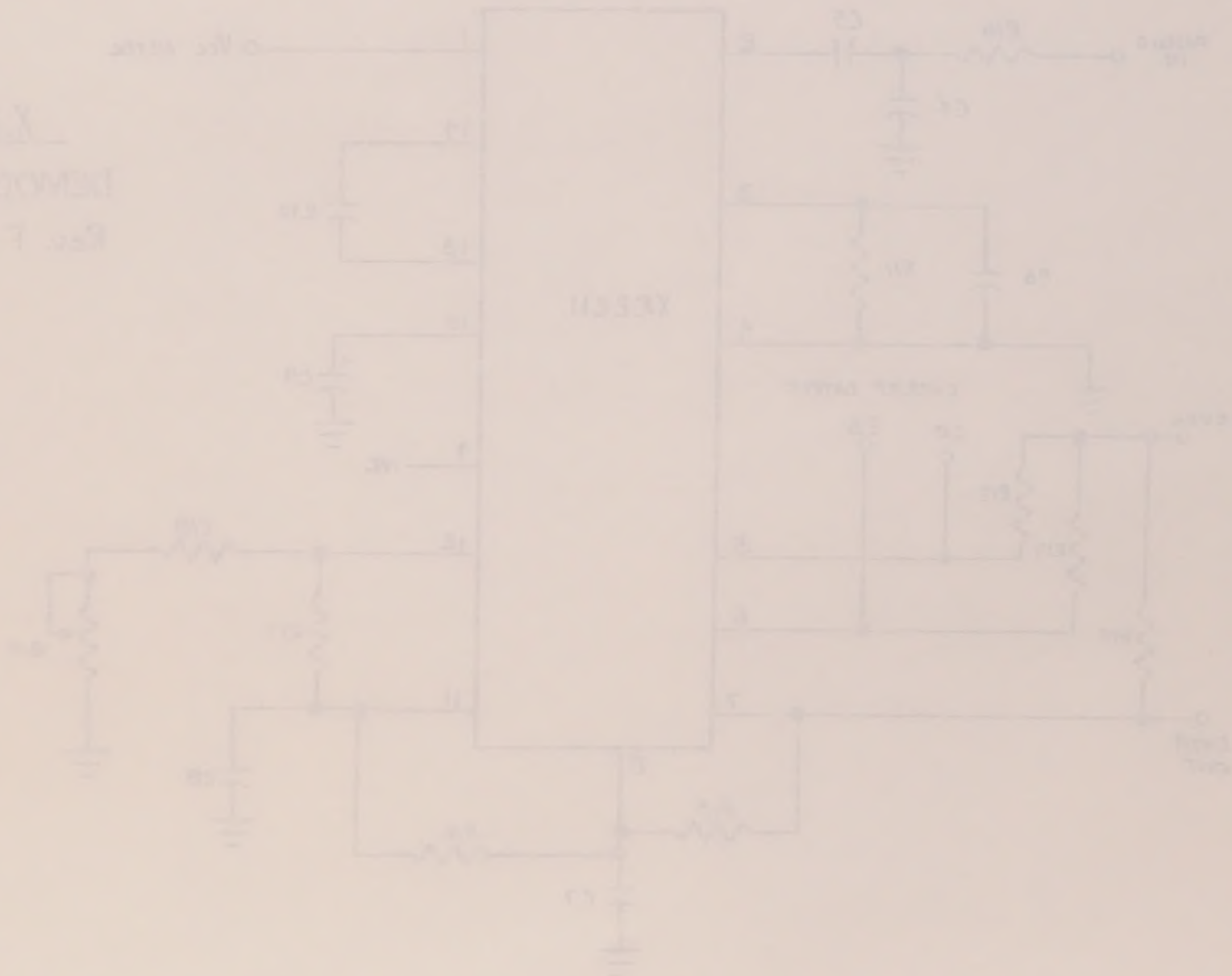
If the power you plan to use to supply the modem is greater than +12 VDC, install a 100 ohm resistor in series with the modem's 12v input.




# X.25 MODEM

## DEMODULATOR SECTION

Rev. F 11/03/84



# PACKET MODEM PARTS LIST

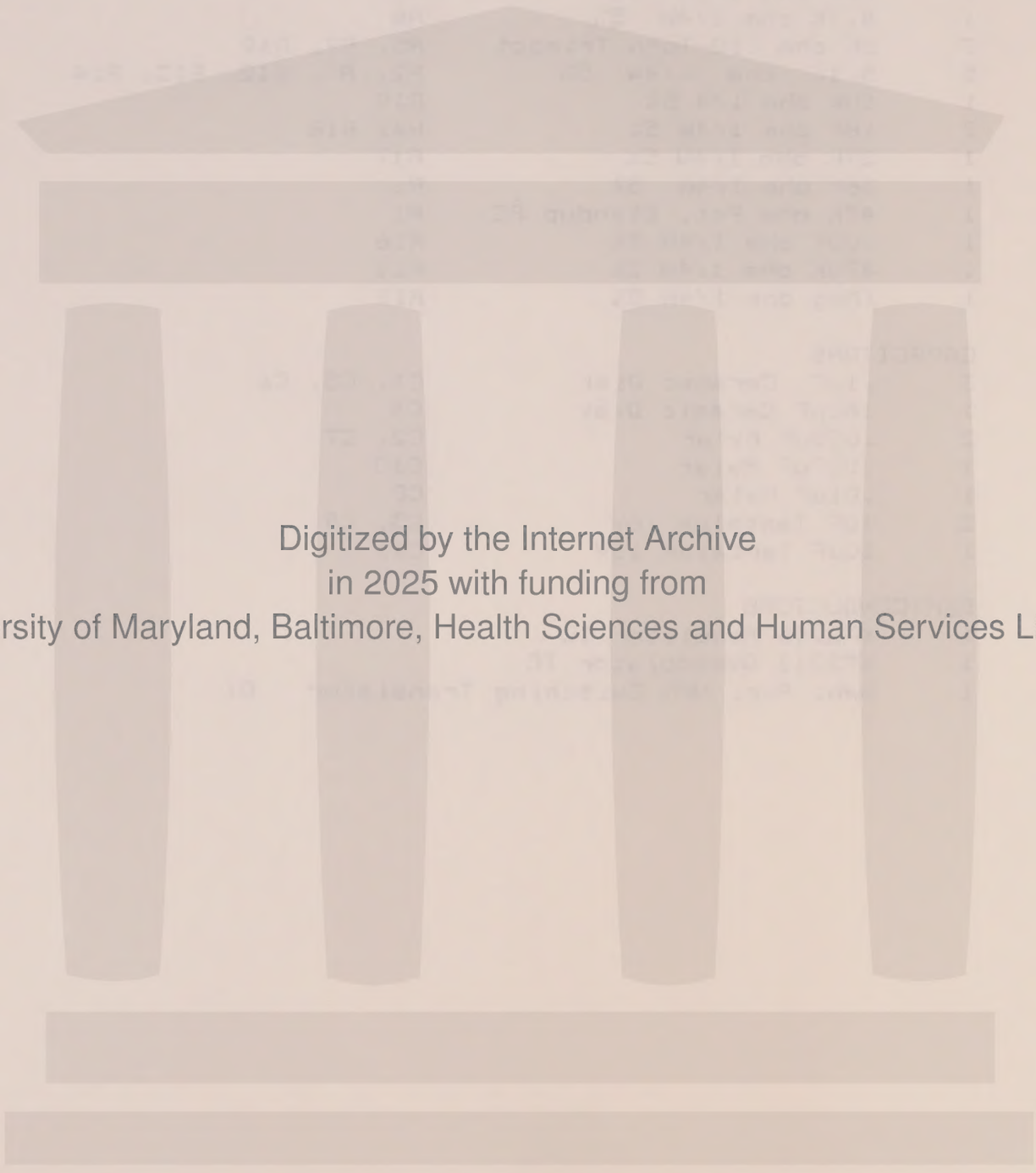
300 Baud --- 1070/1270 Hz

| QTY | DESCRIPTION | WHERE USED |
|---|---|---|
| **RESISTORS** | | |
| 1 | 220 ohm 1/4W 5% | R9 |
| 1 | 4.7K ohm 1/4W 5% | R8 |
| 3 | 5K ohm 10-Turn Trimpot | R5, R7, R19 |
| 5 | 5.1K ohm 1/4W 5% | R2, R3, R12, R13, R14 |
| 1 | 10K ohm 1/4 5% | R10 |
| 1 | 18K ohm 1/4W 5% | R18 |
| 1 | 22K ohm 1/4W 5% | R4 |
| 1 | 24K ohm 1/4W 5% | R6 |
| 1 | 47K ohm Pot, Standup PC | R1 |
| 1 | 100K ohm 1/4W 5% | R16 |
| 1 | 120K ohm 1/4W 5% | R17 |
| 1 | 470K ohm 1/4W 5% | R11 |
| 1 | 510K ohm 1/4W 5% | R15 |
| **CAPACITORS** | | |
| 2 | .1uF Ceramic Disk | C1, C5 |
| 1 | 100pF Ceramic Disk | C4 |
| 2 | .047uF Mylar | C6, C10 |
| 1 | .033uF Mylar | C2 |
| 2 | .01uF Mylar | C7, C8 |
| 2 | 1uF Tantalum 16V | C3, C9 |
| 1 | 10uF Tantalum 16V | C11 |
| **SEMICONDUCTORS** | | |
| 1 | XR2206 Modulator IC | |
| 1 | XR2211 Demodulator IC | |
| 1 | Gen. Pur. NPN Switching Transistor | Q1 |

PACKET MODEM PARTS LIST

1200 Baud --- 1200/2200 Hz

| QTY | DESCRIPTION | WHERE USED |
|---|---|---|
| **RESISTORS** | | |
| 1 | 220 ohm 1/4W 5% | R9 |
| 1 | 4.7K ohm 1/4W 5% | R8 |
| 3 | 5K ohm 10-Turn Trimpot | R5, R7, R19 |
| 5 | 5.1K ohm 1/4W 5% | R2, R3, R12, R13, R14 |
| 1 | 10K ohm 1/4 5% | R10 |
| 2 | 18K ohm 1/4W 5% | R4, R18 |
| 1 | 27K ohm 1/4W 5% | R17 |
| 1 | 36K ohm 1/4W 5% | R6 |
| 1 | 47K ohm Pot, Standup PC | R1 |
| 1 | 100K ohm 1/4W 5% | R16 |
| 1 | 470K ohm 1/4W 5% | R11 |
| 1 | 1Meg ohm 1/4W 5% | R15 |
| **CAPACITORS** | | |
| 3 | .1uF Ceramic Disk | C1, C5, C6 |
| 1 | 100pF Ceramic Disk | C4 |
| 2 | .022uF Mylar | C2, C7 |
| 1 | .027uF Mylar | C10 |
| 1 | .01uF Mylar | C8 |
| 2 | 1uF Tantalum 16V | C3, C9 |
| 1 | 10uF Tantalum 16V | C11 |
| **SEMICONDUCTORS** | | |
| 1 | XR2206 Modulator IC | |
| 1 | XR2211 Demodulator IC | |
| 1 | Gen. Pur. NPN Switching Transistor | Q1 |



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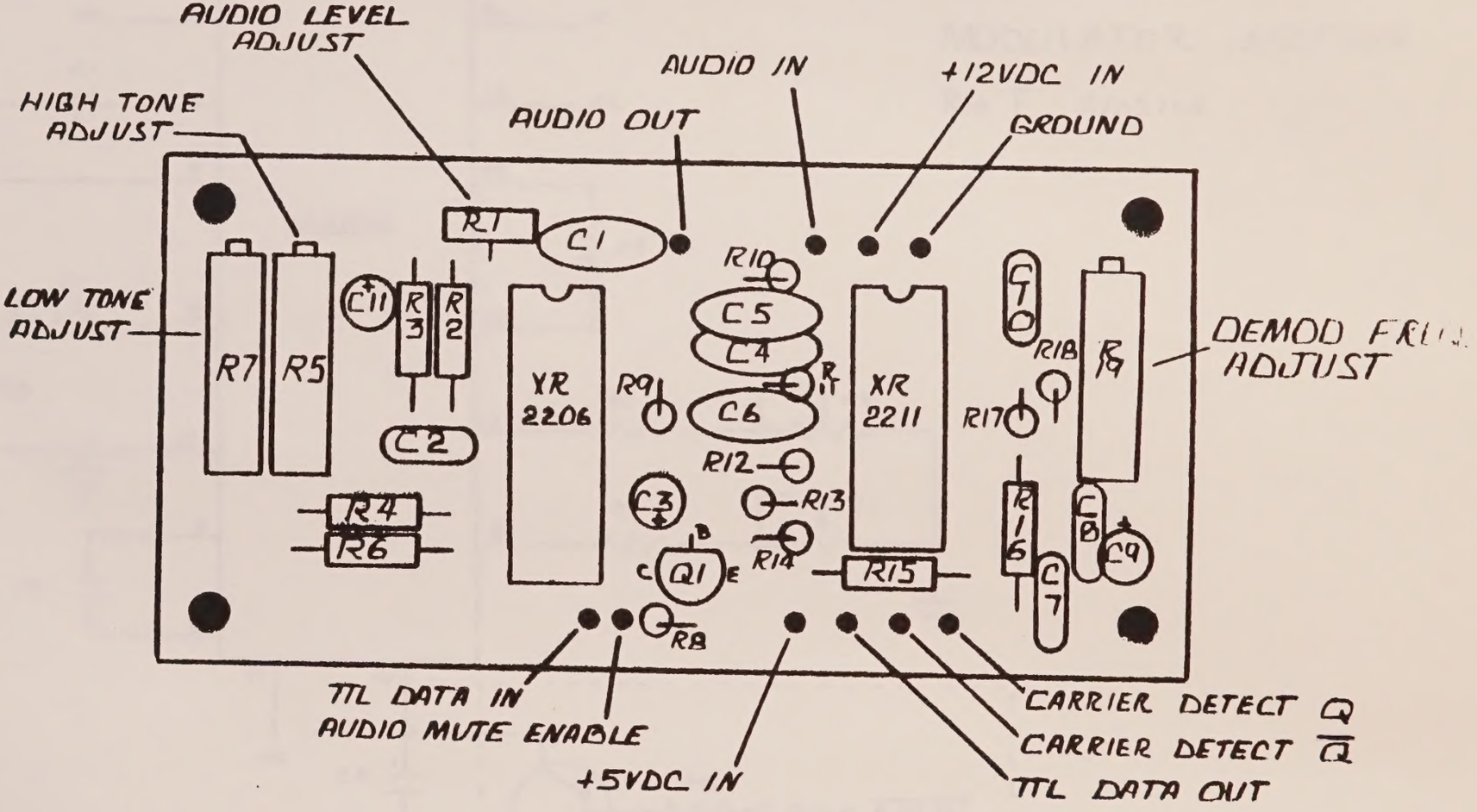
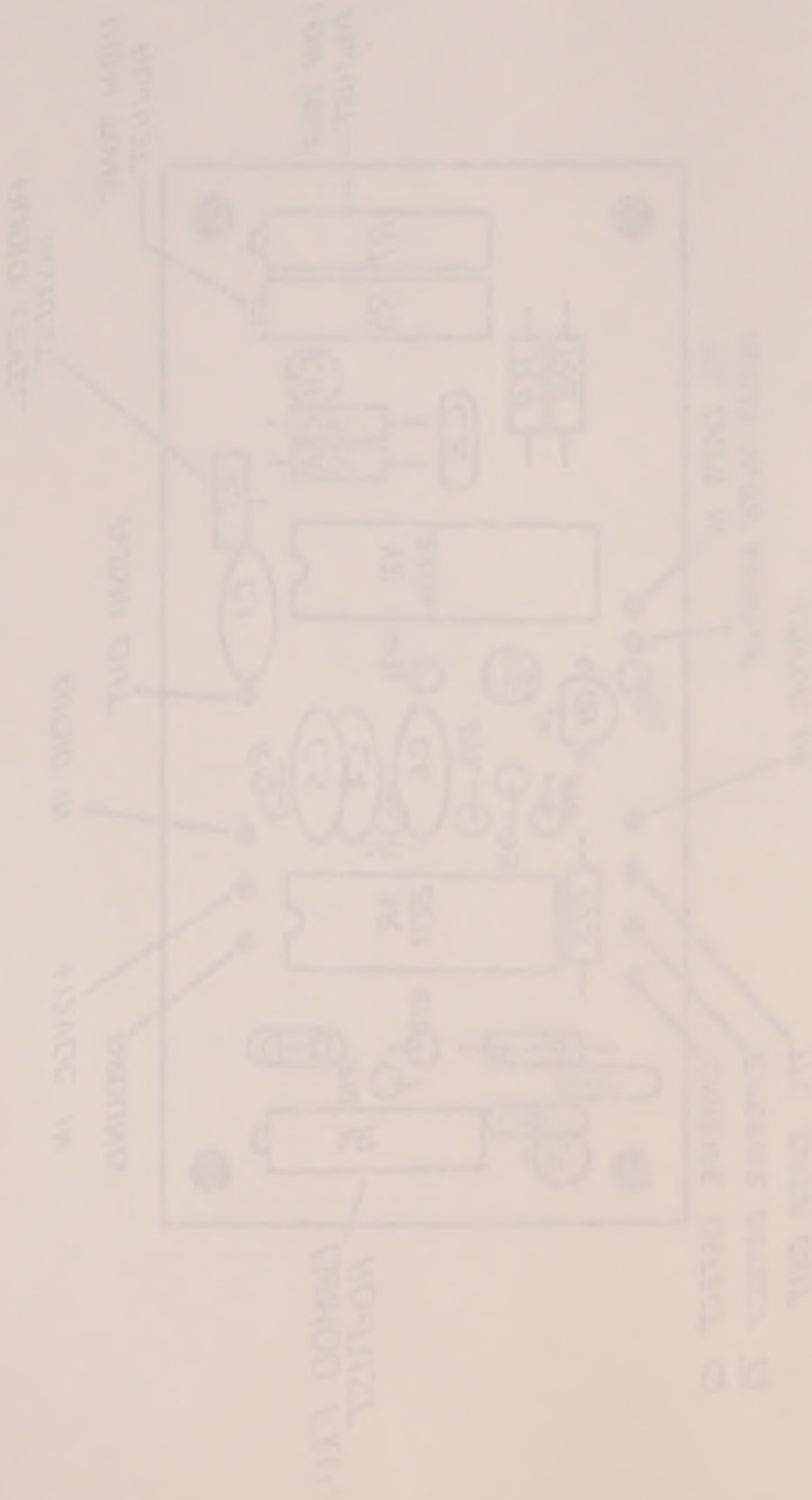



| | | |
|---|---|---|
| N4ATH 2.5 | PACKET MODEM PARTS PLACEMENT | REV A |
| | FADCA MODEM PROJECT | SCALE |



# X.25 MODEM

## MODULATOR SECTION

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